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INDIANA DEPARTMENT OF TRANSPORTATION
MATERIALS AND TESTS DIVISION

QUANTITY DETERMINATION OF BITUMINOUS MATERIALS AND AGGREGATES FOR SEAL COATS
ITM No. 579-94P

1. SCOPE

1.1 This method covers the procedure for determination of the quantity of bituminous materials and aggregates in seal coat applications.

2. APPARATUS

2.1 Traffic control equipment and personnel to be furnished by the district

2.2 Pneumatic tire roller or vehicle

2.3 Yield test scales

2.4 Buckets as needed

2.5 19 L (5-gallon) can with pour spout

2.6 Stove

2.7 0.4 m^2 (0.5 yd^2) template consisting of a 750 x 1200 mm (30 x 48 in.) metal plate with a 450 x 900 mm (18 x 36in.) opening

2.8 Aggregate shaker box approximately 450 mm (18 in.) square and 75 mm (3 in.) deep with a 25 mm (1 in.) open slot in the bottom along one side. A piece of 12.5 mm (1/2 in.) opening screen cloth shall extend under this open slot.

2.9 Squeegee and brushes as needed

2.10 Thermometer, range 10 to 149 °C (50 to 300 °F)

3. MATERIALS

3.1 A minimum of 19 L (5 gallons) of the bituminous material that is to be used on the project.

3.2 A minimum of 34 kg (75 pounds) of the aggregate that is to be used on the project.

4. PROCEDURE

4.1 Select a location typical of the project. Sites should be selected to prevent tracking of bitumen from one test area to another. On the mainline select a wheel path.

4.2 Set up traffic control.

4.3 Heat the bituminous material according to the following:

AE-90, AE-150	60 °C - 71 °C	(140 °F – 160 °F)
RS-2	49 °C - 60 °C	(120 °F – 140 °F)
RC-800	110 °C – 121 °C	(230 °F – 250 °F)
RC-3000	121 °C – 135 °C	(250 °F – 275 °F)

4.4 Clean and prepare surface as necessary.

4.5 Place the template on the selected site.

4.6 Weigh the aggregate. The quantity will be within the values listed in Table 1.

4.7 Weigh the heated bituminous material. The quantity will be within the values listed in Table 1.

4.8 Apply the liquid asphalt uniformly on the test area by pouring and using the squeegee and brush to distribute.

4.9 Place the aggregate uniformly on the test area with the shaker box.

4.10 Remove the template.

4.11 Roll the test area with the pneumatic tire roller or the vehicle tire.

4.12 Repeat the above procedure by varying the quantities of bituminous material and aggregates until the desired result is obtained.

	RATE OF APPLICATION PER SQUARE METER (SQUARE YARD)	
COVER AGGREGATE SIZE NO.	AGGREGATE KILOGRAMS (POUNDS)	BITUMINOUS MATERIAL LITER (GALLON) AT 16 °C (60 °F)
23, 24	5.4-6.7 (12-15)	0.45-0.61 (0.12-0.16)
12	6.3-7.6 (14-17)	1.09-1.25 (0.29-0.33)
11	7.2-9.0 (16-20)	1.36-1.51 (0.36-0.40)
9	12.6-14.4 (28-32)	2.38-2.57 (0.63-0.68)

Table 1

4.13 Remove traffic control. If test areas are on the mainline, removal of traffic control should be delayed until bituminous material has cured sufficiently to hold the aggregate without displacement.

4.14 Return to location the next day and broom off and weigh the excess aggregate for shoulder locations. This is not required for mainline locations.

4.15 Make a visual inspection of the test areas for bitumen content and aggregate retention. Further visual inspection should be made until the seal coat operation starts. The test area should appear to be one aggregate particle in depth and the particle should be embedded in the bituminous material 50-70%.

5. REPORT

5.1 The quantity of bituminous material and aggregate for the seal coat will be reported on the appropriate form for use on the proposed project. If there are different pavement sections on the project, several test sections may be necessary.